



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/508,945	10/01/2004	Sumie Suda	259727US0XPCT	7750
22850 7590 01/30/2008 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER YEE, DEBORAH	
			ART UNIT 1793	PAPER NUMBER
			NOTIFICATION DATE 01/30/2008	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

**Office Action Summary**

Application No.

10/508,945

Applicant(s)

SUDA ET AL.

Examiner

Deborah Yee

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11 to 14, 43 to 46 and 48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11 to 14, 43 to 46 and 48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 27, 2007 has been entered.

### ***Response to Arguments***

2. Applicant's arguments dated October 25, 2007 with respect to claims 11 to 14, 43 to 46 and 48 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 11 to 14, 43 to 46 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese patent 7-90495 (hereinafter JP'495) in view of US Patent 6,645,319 (hereinafter Nagao et al.) or Japanese patent 08-120407 (hereinafter JP'407).

5. The English abstract of JP'495 discloses pearlitic and/or ferritic steel wire having a composition with constituents whose wt% ranges overlap of closely approximate those recited by the claims. Note that the similarities in wt% range limitations establishes a prima facie case of obviousness because it would be obvious for one skilled in the art to select the claimed range limitations over the broader disclosure of the prior art since the prior art teaches same utility (steel spring wire) and similar property of high strength, see MPEP 2144.05.

6. Even though JP'495 steel contains 0.7 to 1.0% C which is slightly higher than the newly amended C range of 0.68% recited by claim 11, such would not be a patentable difference since it would be well within the skill of the artisan to lower the carbon content of JP'495 steel to produce no more than then the known and expected from such an reduction. Note Nagao et al. on lines 46 to 61 in column 3 teaches C as an effective element in an analogous ferritic-pearlitic steel wire for increasing strength but toughness and ductility can be compromised with higher C levels. Hence to lower C content in the steel of JP'495 to 0.68% to improve toughness and ductility which in turn avoids cracking during working, would be a matter of choice and routine optimization well within the skill of the artisan and productive of no new and unexpected results in view of secondary teaching.

7. JP'495 teaches 0.05 to 1 vol. % of carbides wherein carbide size is  $\leq 0.1 \mu\text{m}$ , and therefore would suggest a carbide density of 5 particles/ $100 \mu\text{m}^2$  or less wherein the carbide diameters are  $0.1 \mu\text{m}$  or more as recited by claim 11 and the carbide density of 2 particles/ $100 \mu\text{m}^2$  or less wherein the carbide diameters are  $0.1 \mu\text{m}$  or more as

recited by claim 43. Note JP'495 teaches controlling carbide size to  $\leq 0.1 \mu\text{m}$  in order to increase strength and reinforcement of steel wire. Hence similar to Applicants' present invention, JP'495 teaches away from a high density of coarse carbides  $\geq 0.1 \mu\text{m}$ .

8. In addition, it would be obvious for one skilled in the art to avoid high density of coarse carbides in JP'495 in view of the teaching of JP'407. Note that English abstract of JP'407 teaches that by restricting average grain size of carbides in an analogous pearlite steel wire alloy to 10 to 50 nm, and preferably 10-30nm, then a steel wire with superior strength with excellent ductility and high toughness with no occurrence of longitudinal cracking during forming can be produced.

8. Moreover, the steel of JP'495 does not contain Ni and/or Mo as an alloying constituent but it would be well within the skill of the artisan to incorporate. Note that Nagao et al. starting on lines 63 of column 4 and ending on line 2 of column 5 and lines 34-50 in column 5 teach adding up to 1.0% Ni and up to 0.1% Mo to an analogous steel wire alloy to enhance hardenability and toughness. Since such properties are desired and sought for the steel of JP'495, then it would be an obvious modification for one skilled in the art to incorporate small amounts of Ni and/or Mo as alloying constituents to produce no more than the known and expected effect from such an addition.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah Yee whose telephone number is 571-272-1253. The examiner can normally be reached on Monday-Friday 6:00 am-2:30 pm.

Application/Control Number:  
10/508,945  
Art Unit: 1793

Page 5

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Deborah Yee/  
Primary Examiner  
Art Unit 1793

/DY/